REMARKS

Petition for Extension of Time Under 37 CFR 1.136(a)

It is hereby requested that the term to respond to the Examiner's Action of February 25, 2008 be extended two months, from May 25, 2008 to July 25, 2008.

The Commissioner is hereby authorized to charge the extension fee and any additional fees associated with this communication to Deposit Account No. 50-4364.

In the Office Action, the Examiner indicated that claims 1 through 23 are pending in the application and the Examiner rejected claims 1-17, 20 and 21, and objected to claims 18, 19, 22 and 23.

Objections to the Specification and Claims

On page 2 of the Office Action, the Examiner has objected to the specification for failing to include section headings, and has pointed the Applicant to suggested guidelines for the use of headings. Applicant thanks the Examiner for this information and has amended the specification to insert the appropriate headings in accordance with the Examiner's suggestions. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the objection to the specification.

On page 3 of the Office Action, the Examiner has objected to claims 18, 19, 22 and 23 as being in improper form. Applicant has amended these claims to remove the multiple dependencies on multiple dependent claims. Accordingly, the Examiner is respectfully requested

to reconsider and withdraw the objection to claims 18, 19, 22 and 23, and submits that these

claims are now in condition for allowance.

Rejection under 35 U.S.C. §102

On page 3 of the Office Action, the Examiner rejected claims 1-17, 20 and 21 under 35

U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,120,730 to Maleug et al.

The Cited Prior Art Does Not Anticipate the Claimed Invention

The MPEP and case law provide the following definition of anticipation for the

purposes of 35 U.S.C. §102:

> "A claim is anticipated only if each and every element as set forth in the claim
> is found, either expressly or inherently described, in a single prior art
> reference." (*Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628,
> 631 (Fed. Cir. 1987) M.P.E.P. §2131.

The Examiner Has Not Established a *Prima Facie* Case of Anticipation

The Examiner has cited Maleug as anticipating the claims. Independent claim 24

(rewritten original claim 1) includes a limitation that a composite file system is utilized. Maleug

fails to disclose a composite file system within the meaning of the present application. Instead,

Maleug describes an arrangement in which a non-linear memory (such as a NAND flash

memory) is partitioned to provide both an eXecute In Place (XIP) space and a FAT space (col. 4,

lines 33-34). Binary images stored in the XIP space cannot (despite the name) be executed from

the non-linear memory and therefore must be "fixed-up" (col 4, lines 21-31) and mapped into RAM in order to be executed.

Maleug therefore uses virtual memory concepts in order to execute binary images stored in the XIP partition in the non-linear memory. Because the fixed-up binary images in the RAM are only read from and never written to by the CPU, they can always be restored from the images in the XIP space of the non-linear memory. For this reason, the images in the RAM can be freely overwritten and then paged into RAM again when they are next required. Maleug describes this virtual memory process, including the paging and overwriting, clearly at col. 5, lines 23-39.

The RAM in Maleug is not dedicated to storing the mapped XIP pages and may, of course, store other data. Similarly, the non-linear memory does not just contain the XIP space, but also stores data in the separate FAT space. However, regardless of their partitioning, the memories implement a virtual memory ideology.

The invention of the present application is different than virtual paging, and relates instead to the provision of a composite file system. The manner in which memories are accessed using a composite file system is very different to a virtual memory concept. Claim 1 (now claim 24) has been amended to emphasize these differences, with consequential amendments made to its dependent claims.

In particular, claim 24 now emphasizes the two parts of the file system, with one part copied and held in executable memory and the other part held in non-executable memory, and the presentation of these two parts as a single composite file system for use by the device. This is very different to the single file system in Maleug, which selectively loads binary images from the XIP space of the non-linear memory into RAM for execution.

Specifically, claim 24 now recites first and further data files in a non-executable memory of a device. The first data file is copied into executable memory and the combination of this copy of the first file in executable memory and the original further file still in the nonexecutable memory, is presented as a composite file system where the first file is accessed directly from the executable memory and the further file is accessed by selectively copying it into the executable memory. This is in direct contrast to the virtual memory system of Maleug, in which a the entire XIP space of the non-linear memory is represented in a single file system as residing in RAM and its pages are swapped into RAM as required to maintain this "illusion."

In essence, the composite file system of the present invention divides the NAND flash memory into sections with different loading policies for the software contents stored within those sections. In one embodiment described in the application, the core OS image follows one loading policy such that it is shadowed into RAM at system boot time by the core loader, whereas the read-only file system (ROFS), containing most of the remaining OS components, follows a different loading policy whereby they are shadowed into RAM upon demand. Hence, once the core OS image has been loaded into RAM, it appears like a standard XIP ROM image and the device file server can use its standard ROM file system for accessing this image. However, with the composite file system, the core OS image (in RAM) and the ROFS image (in NAND flash and shadowed into RAM upon demand) are advantageously presented as a single read only drive (i.e. as a single composite file system, a part of which resides in RAM and another part of which resides in NAND flash that is shadowed into RAM upon demand). Because a composite file system is used, the fact that certain components of the OS reside in non-XIP NAND flash memory is completely transparent to any applications on the device. A key aspect of this invention is that a composite file system is used.

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The subject matter of claim 24 is, therefore, quite different to computers that store data in a non-XIP memory and then copy that data into system RAM for access by the processor (like Maleug). In such systems, only a changing portion of the data stored in the non-XIP memory is copied into system RAM. This is in contrast to a composite file system which exists in part in the non-executable memory and in part in the executable RAM memory. Instead, files exists exclusively in the non-XIP memory and parts of the files are loaded into RAM only when they need to be used. This is because the storage capacity of the non-XIP memory is usually far greater than that of the RAM. If all of the file for use can be loaded into RAM as a single component, then the shadow step is usually done and the file is executed as a single component from RAM. It is stressed that such operation is very different to a composite file system existing in part in XIP RAM and in part in non-XIP memory, such as NAND flash.

The composite file system of the present invention offers a high degree of control, both to the manufacturer of a device and to the OS, which knows exactly what parts of the composite file system have been copied into XIP memory and which parts have not. In contrast, a demand paging system is transparent even to the host OS, which does not know what is in RAM and what is not. The composite file system of the present invention also allows a single logical drive to be built out of many different partitions, some of which can be changed without affecting other parts (e.g. the use of language packs, as described in the present application). There is no parallel for this in the Maleug reference.

Another important difference between the two types of file system is that the composite file system of the present invention is designed to be run in XIP memory; files are decompressed from NAND into RAM as files and then executed directly without the need for any fix up by a

loader. In contrast, Maleug explicitly states that images from the non-linear memory must be fixed-up before they can be run from RAM.

When a file from the composite file system is executed there are two copies; the compressed version in NAND memory and the uncompressed XIP version in RAM, which is always present in the XIP memory even when it is not being used. Hence, the version copied into RAM is always available for subsequent execution. This is not the case in Maleug, which teaches freely overwriting the XIP image in RAM, and paging the image in and out as required. Importantly, every time an image is paged into RAM for execution it must be fixed-up again.

It is respectfully submitted that the presentation of a file in XIP memory and a file in non-XIP memory as a single file system, which is composite because part of the file system exists in XIP memory and another part exists in non XIP memory, is neither taught nor suggested in Maleug and that claim 1 (new claim 24) is patentable over Maleug for at least this reason, and thus all of the claims are patentable over Maleug as well. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims under 35 U.S.C. §102 over Maleug.

Conclusion

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An early Notice of Allowance is earnestly solicited.

The Commissioner is hereby authorized to charge the extension fee and any additional fees associated with this communication to applicant's Deposit Account No. 50-4364.

Respectfully submitted

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